

ALASKA PEBBLE PATTERN

March 2024

Official Bulletin of The Chugach Gem & Mineral Society



Chugach Gem & Mineral Society
P.O. Box 140112
Anchorage, AK. 99514-0112
<https://www.cgmsak.org>

CHUGACH GEM & MINERAL SOCIETY maintains memberships in:
 AMERICAN FEDERATION OF MINERALOGICAL SOCIETIES
 Northwest Federation of Mineralogical Societies

Chugach Gem & Mineral Society Meeting Information
 All Meetings will be held at the First United Methodist Church
 725 west 9th Ave, Anchorage, AK.

Enter from the rear parking lot, south of 8th Avenue between G & H Streets.

BUSINESS MEETING – 2nd Thursday of Jan thru Nov at 6:30 pm.
POTLUCK MEETING – 4th Thursday of Jan thru Oct at 6:30 pm.
CHRISTMAS POTLUCK – 2nd Thursday of Dec at 6:15 pm.

For the potlucks, bring an entrée, side dish, salad, or dessert (plus serving utensil)
 to serve at least 5 people. Also bring your own plate, silverware and drink.
 Most importantly, bring a rock to show!

Annual membership fees: Individuals - \$20.00; Families (2 or more) - \$25.00; Bulletin only - \$10.00
 Lifetime membership fees: Individuals - \$200.00; Families (2 adults & children under 18) - \$250.00

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CHUGACH GEM AND MINERAL SOCIETY OFFICERS & CHAIRPERSONS

(✓) Checkmark indicates Texting capability

ELECTED POSITIONS FOR 2024

President: Kent Devine 907-744-0370 ✓

1st.Vice President: Mary Helms 907-441-1366✓

2nd Vice President: Paul Burger 575-302-3673 ✓

Treasurer: Greg Durocher 907-337-2553 ✓

Recording Secretary: Mark Avery (907-854-9072 ✓

Correspondence Secretary: Mike McMartin 907-258-1678 ✓

Member at Large: David ✓

APPOINTED POSITIONS FOR 2024

Programs: Greg Durocher 907-337-2553 ✓

Field Trips: Bonnie Hepburn 907-980-1491✓

Membership: Shana Rose 858-348-7812 ✓

Federation Director: Albert Whitehead 907-244-1772 ✓

Newsletter Editor: Chris Teutsch 907-694-6586

Sunshine: (Vacant)

Parliamentarian: **Position Open**

Websites

Contributor: Greg Durocher, Chris Teutsch

CGMS full URL for club’s FB page:

<http://www.facebook.com/pages/Chugach-Gem-and-Mineral-Society/157967464259784>

CGMS website: <https://www.cgmsak.org/> (undergoing final tweaks and touch-ups)

Chaco Rocks: <https://chacorocks.cave-exploring.com/wp/>

Cali's capped caldera:

<https://www.livescience.com/planet-earth/volcanos/californias-supervolcano-has-a-massive-lid-that-causes-swarms-of-earthquakes-and-thats-a-good-thing-scientists-say>

Spelunking sloths?

<https://www.discovermagazine.com/the-sciences/an-ancient-sloth-weighing-at-least-500-pounds-fell-victim-to-a-sinkhole>

Helium deposits discovered in Minnesota’s Iron Range:

<https://www.yahoo.com/news/helium-discovery-northern-minnesota-may-225900218.html>

**Chugach Gem and Mineral Society (CGMS) March 14, 2024
Business Meeting Minutes**

The meeting was called to order by the President, Kent at approximately 6:30 pm. There were 23 members present.

Secretary's Report (Mark): Mark read the minutes from the business meeting on February 9, 2024. Minutes were accepted as read.

Treasurer's Report (Greg not available): Nothing significant to report (NSTR).

Corresponding Secretary Report (Mike not available): NSTR.

Sunshine Report (Vacant): We are very saddened to learn of the passing of Tom Cooper's wife, Donna.

Membership Report (Shana not available): NSTR.

Pebble Patter (Chris): We are looking for any photos and stories from the Rock and Mineral Show. Please provide them to Chris.

Scholarships (Greg not available): NSTR.

Federation Report (Albert). NSTR.

Field Trips Report (Bonnie):

- Bonnie voiced appreciation to all those who helped make the Fur Rondy CGMS Rock and Mineral Show Feb 24-25 and Mar 2-3, a success. Paul said we filled 3 rooms this time.
- For field trip information, see the updated Trip List in the Pebble Patter, Facebook, or cgmsak.org.

Old Business:

- Bonnie and JoAnna discussed improvements on the business cards. Paul offered to provide help on the QR Code.
- Mark provided an update on the discussions with the Anchorage Senior Center regarding a lapidary shop. The Director of the Anchorage Senior Center is not interested in adding a lapidary shop at this time due to lack of staff and space. However, we will continue to build a proposal and offer it to other venues.
- Kent has not yet heard back from the Northwest Federation Mineralogical Society (NWMS) regarding CGMS' requirements or expectations in hosting a region show.

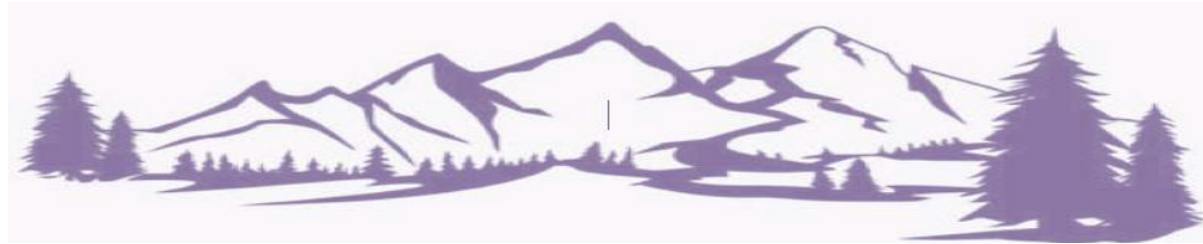
New Business:

- Bonnie said that judges are needed for the Alaska State Science and Engineering Fair, April 5-6 2024. Those interested are invited to see their website to register.
- Mary proposed to offer a family membership to the best geosciences-related entry in each of three categories of the Alaska State Science and Engineering Fair. A motion was made, seconded and unanimously approved.
- Julie asked about CGMS patches. Kent Produced patches and pins available for purchase.
- Mary presented “Thor, the hammer of rock” to Lyndsie for her participation and her display during the Fur Rondy CGMS Rock and Mineral Show.

Adjourn: Steve motioned to adjourn the meeting. The motion was seconded and the meeting was adjourned.

The business meeting was followed by a slide show presentation on Thundereggs.

Respectfully submitted,
Mark Avery, Secretary



From the President's Desk
Kent Devine

Mysteries of the Past: Fossil Ammonites of the Talkeetna Mountains

Nestled within the rugged beauty of Alaska's Talkeetna Mountains lies a geological treasure trove that holds clues to a distant past. Among the towering peaks and sweeping valleys, fossil hunters and scientists have uncovered a remarkable find – the fossilized remains of ancient marine creatures known as ammonites. These enigmatic fossils offer a window into the prehistoric world, providing invaluable insights into the evolution of life on Earth. The Talkeetna Mountains, located north of Anchorage, boast a diverse geological history that spans millions of years. Formed by the collision of tectonic plates and sculpted by the forces of erosion, this remote region is a testament to the Earth's dynamic and ever-changing landscape. But it is not just the towering peaks and winding rivers that capture the imagination of explorers and scientists; it is what lies beneath the surface – the fossilized remnants of creatures that once populated ancient seas.

Ammonites, distant relatives of modern-day squid and octopuses, were cephalopods that thrived in the oceans during the Mesozoic Era, some 240 to 65 million years ago. These creatures were characterized by their coiled shells, which ranged in size from mere centimeters to several meters in diameter. Over millions of years, countless ammonites inhabited the world's oceans, leaving behind a rich fossil record that provides valuable

insights into their biology, ecology, and evolutionary history.

In the Talkeetna Mountains, fossil hunters have discovered an abundance of these ancient treasures, scattered across the region's rocky terrain. One of the most prolific fossil sites is located in tributaries of the Little Nelchina river drainage where layers of sedimentary rock contain a wealth of well-preserved ammonite fossils. Here, amidst the winding rivers, amateur paleontologists and seasoned researchers alike comb the landscape in search of these elusive relics of the past. From the banks of the river to the slopes of nearby mountains, fossil hunters have uncovered specimens of varying shapes, sizes, and species, each providing valuable clues about the ancient ecosystems that once thrived in this region. But the discovery of fossil ammonites in the Talkeetna Mountains is not merely a scientific curiosity; it is a testament to the region's rich geological history and its importance in understanding the evolution of life on Earth. These ancient creatures inhabited oceans that once covered vast expanses of the planet, and their fossilized remains serve as a reminder of the dynamic nature of our planet's ecosystems over millions of years.

As study continues into the fossil ammonites of the Talkeetna Mountains, new discoveries are made, and new questions arise. How did these creatures live and interact with their environment? What factors contributed to their extinction at the end of the Mesozoic Era? And what can their fossilized remains tell us about the broader patterns of evolution and extinction in Earth's history? For now, the discovery of these ancient treasures serves as a reminder of the incredible diversity of life that has inhabited our planet over millions of years and the ongoing quest to unravel the mysteries of the past.



A Word About Helium And Its Origin On Earth

This topic is not usual fare for the Pebble Patter, but after having read an article on the Internet describing helium deposits discovered beneath Minnesota's Iron Ranges (see website on page two referencing this topic), my interest was peaked and I investigated a bit further.

On earth, helium forms deep inside the planet along with the heaviest elements. In that environment, unstable elements such as radium, thorium and uranium undergo radioactive decay. A small by-product of that process is helium. During this decay process, a heavy nucleus emits two protons and two neutrons. Existing with these two particles that are bound together, is a helium nucleus. The decay of radioactive isotopes is what produces helium as a tiny fraction called a-particles or alpha particles.

Next to hydrogen, helium is the lightest element and the second least reactive noble gas after neon. Its closest neighbor below it on the periodic table is lithium. Once helium escapes its rocky confines, it makes its way to the earth's outer atmosphere where it eventually escapes earth's gravitational field. By the way, all of our commercial helium supplies comes as a by-product from drilling into petroleum reserves.

According to mindat.org, helium is not a component of most minerals. It is however present in uranium and thorium minerals, the result of radioactive decay. These radioactive minerals include cleveite, carnotite and monazite. They also include Pitchblende, a pitchy black, amorphous mineral. The crystalline form of pitchblende is the mineral urannite uranium oxide (UO₂). It contains 50-80



Pitchblende →

percent of the element, uranium. Urannite is often found in combination with the element thorium.

Helium is one of the trace elements in the earth's atmosphere, constituting only 0.000524% by volume__ because it eventually leaks into outer space. While helium, unlike hydrogen is not explosive, it is considered an asphyxiant if too much of it is inadvertently inhaled [OSHA 29 CFR 1910.1200]. The second lightest element in the periodic table, helium is named for Helios, the ancient Greek sun god after Jules Janssen detected it in 1868 through spectral analysis of sunlight where it appeared as a yellow spectral line during a solar eclipse. In 1895, Sir William Ramsay made the formal discovery of helium from cleveite, a radioactive uranium residue using sulfuric acid (and independently by Per Teodor Cleve and Nils Abraham Langlet in Uppsala, Sweden). Afterwards, helium was confirmed as a new chemical element and placed on the periodic table in the mid 19th century. Lastly, helium dating is an age determination method that depends on the production of helium during the decay of radioactive isotopes of uranium-235, uranium-238, and thorium-232 (*Photo credit of pitchblende shown above: (photo © Jeff Weissman/mindat.org)*)



While the bright yellow mineral carnotite ($K_2(UO_2)_2(VO_4)_2 \cdot 3H_2O$) was one of the main radioactive minerals mined on the Colorado Plateau during the 1950's, pitchblende, native silver and acanthite were the principle ores on the south shores of the Great Bear Lake, Port Radium, NWT of Canada. Bismuth and nickel minerals occurred as well at Port Radium. During the early 1970's, the Eldorado mine was renovated and operated to extract silver ore. It was a new operation in old workings and excited the NWT mining communities during 1964 and 1982.

I happened to know about it because I worked in a large gold mine in Yellowknife by the Great Slave Lake during the early 1970's, and when word got out about new job opportunities further north, there was a buzz in the camp. I also heard about the pitchblende found in that part of the country. For some nebulous reason I decided against applying for work at that location. Now I am glad for my choice back then, because later I learned more about the cancer risks associated with working underground in close proximity to pitchblende for longer periods of time.

I have veered off from my discussion on helium, but the take-away is that a significant part of the production of helium gas on earth is closely associated with the decay of radioactive minerals. This conclusion did not answer the questions where the majority of helium has originated from. The short answer would lead us closer to the field of astronomy, the center of our solar system and outer space where this gas is more abundant, being the product of the fusion reaction inside stars. Thus a broader discussion of helium would take us in an entirely different direction than what this article was meant to address. __ct

2024 Chugach Gem and Mineral Society Activity List

Club membership is required for all club trips.

>>To sign up, contact trip leader. (See list after trips) <<

WARNING: If you don't sign up for a trip and just show up, you run the risk of not being informed of last-minute changes.

Date	Leader	Activity	J/KF*	Comments
By appointment Note: Kent unavailable Apr 1-Jun 14	Kent	Rock Cutting and Polishing Workshops	J/KF	Kent has a heated Conex with equipment in Eagle River. BYO rocks for cutting and polishing or choose from Kent's supply. \$25 for 3-hour session. By appointment only.
Apr 5-6 Fri-Sat	ASEF	Alaska Science and Engineering Fair Location: First United Methodist Church, 725 W 9 th Ave, Anchorage, AK	J/KF	K-12 science fair. ASEF needs volunteers with set-up&check-in (Fri), judging and teardown (Sat). Contact ASEF to volunteer: https://alaskasciencefair.org then go to the Mentors, Judges, Volunteers tab. Exhibits available for public viewing on Sat.
May 4 Sat 10 am -	Archie & Larry	Point Woronzof	J/KF	Beachcombing and campfire, hot dogs. Low tide (2.6) at 11:26 am.
May 4-5 (tentative) Sat-Sun	Paul	Chaco Rocks Open House	J/KF	Paul will display specimens from his inventory for purchase. Door prizes.
May 11 Sat	Gary Greg	River Rockhounding	J/KF	Hunt for river rocks. Campfire lunch. Location TBA after scouting trip by leaders.
May 18 (tentative) Sat	Bonnie	Spring Cleanup at Hatcher Pass	J/KF	Meet 11:00 am in Hatcher Pass at the Gold Mint parking lot. Free parking passes for 10 volunteer cars. Hot dog potluck when done. Need to clear date with State Park.
June 8 Sat	Greg	Spirit Stones	J/KF	ATV** or serious 4WD with hi-clearance required. Hunt for spirit stones north of Capt. Cook SRA. Low tide (-3.54) 1:03 pm at Nikiski.
TBD June	Gary	Cottonwood Creek	J/KF	Easy developed hiking trail near Wasilla. Features archeological sites (Athabaskan house pits and fish pits). Note: This is not a rock collecting trip.
TBD Summer	Mary	Rock Painting	KF	CGMS will reserve a park pavilion and host a rock painting event! Mary will provide rocks and paint supplies.

Last updated: 3/17/2024

* J = Joint trip with Mat-Su Club; KF = Kid Friendly; Note: Children's supervision is solely the responsibility of their parent(s).

** Helmets strongly encouraged, but not mandatory for ATVs.

Aug 4-9 Mon-Fri	Steve	Tour of Wrangell (SE Alaska)	J/KF	Fly to Wrangell, stay in town. Water taxi to historic Garnet Ledge for ½ day. Trip includes tour of Stikine River and bear viewing at Anan Sanctuary. Cost approx. \$1050pp for all the above. Max 6. Trip full. Wait list available. If sufficient interest, could do a Garnet Ledge cabin-based trip next year.
TBD Summer	Greg	Red Mountain	J	Explore old chromite mine outside of Seldovia. Trip dependent on condition of road to mine area.
TBD Sun	Elrod	Crow Creek Gold Mine	J/KF	Explore historical buildings at Crow Creek Mine in Girdwood and/or moil for gold. Price dependent on activity. See www.crowcreekgoldmine.com for options.
<i>ad hoc</i>	Dave	Richardson Hwy MP 212	J	Rockhounding on the Richardson Hwy. Bring a pad to sit on. Contact Dave to stay informed of this trip.
<i>ad hoc</i>	Dave	Slide Mtn	J	Exploratory rockhounding on Slide Mtn on the Glenn Hwy. Contact Dave to stay informed of this trip.
TBD Late summer or early fall	Mary	Outdoor Orienteering and Contour Map Reading	KF	Learn orienteering and mapping skills, then apply them in an outdoor setting.
TBD Early Sep	Paul	Ravine Lake Prehnite	J	Very strenuous climb up steep scree slope to prehnite vein. Helmet required.
Oct 26-27 Sat-Sun	Paul	Vendor Rock & Mineral Show	J/KF	Vendors only show at the Midtown Mall.
Early Jan 2025	Mark Kent	Quartzsite Gem and Mineral Show	J	More details as this develops.
Spring 2025	Dave	WY Green River Formation	J	More details as this develops.
2026	Lyndsie	Black Hills, SD	J/KF	More details as this develops.

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Trip Leader Contact Information listed on Next Page

Trip Leader Contact Information

Leader Name	eMail	Phone/Text
Arlie and Larry Carrell	arliecarrell@gmail.com	907-440-8139
Bonnie Hepburn	bonnie.hepburn@gmail.com	907-980-1491
David Hutchings	aireraft@gmail.com	907-748-3427
Elrod, Phillip	alaskanadventures@yahoo.com	907-223-7877
Gary Powell	gepowell@mtaonline.net	907-232-5619
Greg Durocher	akrockhound1@gmail.com	907-337-2553
Kent Devine	subsea50@gmail.com	907-744-0370
Lyndsie Dieken	ldieken15@gmail.com	907-947-0929
Mark Avery	averyabn@aol.com	907-854-9072
Mary Helms	marymeet25@aol.com	907-441-1366
Paul Burger	cavemonpaul@hotmail.com	575-302-3673
Steve Stoney	steve1459@icloud.com	702-419-7540

